REMARKS/ARGUMENTS

Claims 1-4, 6-9, 11, 13-17 and 19-23 are pending in the present application. Claims 5, 10, 12 and 18 remain withdrawn. Claim 1 has been amended. Claim 1 is the sole independent claim.

Claims 1-4, 6-9, 11, 13-17 and 19-23 are presented to the Examiner for further consideration on the merits.

A. Introduction

In the outstanding Office action dated September 7, 2005, the Examiner objected to the drawings, rejected claims 1-4, 6-9, 11, 13 and 15-16 under the second paragraph of 35 U.S.C. § 112, rejected claims 1-4 and 23 under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art shown in FIG. 3 ("the AAPA") in view of U.S. Patent No. 6,169,470 to Ibata et al. ("the Ibata et al. reference"),[1] and rejected claims 6-9, 11, 13 and 15-17 and 19-22 under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of the Ibata et al. reference, further in view of U.S. Patent No. 6,445,271 to Johnson ("the Johnson reference").

B. Asserted Objection to the Drawings

In the outstanding Office action, the Examiner objected to the drawings as failing to illustrate means for connecting a unit inductor to an adjacent unit inductor in the plurality of unit inductors in a direction perpendicular to the top metal layer. This objection is respectfully traversed for at least the reasons set forth below.

The means for connecting may clearly be seen, for example, in both FIGS. 4 and 7 of the original specification. Regarding FIG. 4, paragraph [0046] of the original specification sets forth:

> As shown in FIG. 4, the first, second, and third unit inductors D1a, D1b, and D1c are horizontally arranged linearly with a predetermined

[1] While the initial statement of the rejection refers to U.S. Patent No. 3,638,156 to West ("the West reference"), relied on in the previous Office action dated March 22, 2005, the body of the rejection refers to the newly cited Ibata et al. reference. Therefore, it is assumed that the rejection is actually over the Ibata et al. reference.

> distance therebetween. Thus, in order to connect the fifth metal layer 68a of the first unit inductor D1a to the sixth metal layer 74 of the second unit inductor D1b as described above, the sixth metal layer 74 of the second unit inductor D1b extends a predetermined distance toward the fifth metal layer 68a of the first unit inductor D1a. The fifth metal layer 68a of the first unit inductor D1a also extends the same distance toward the sixth metal layer 74 of the second unit inductor D1b. The extending portion of the sixth metal layer 74 of the second unit inductor D1b is connected to the extending portion of the fifth metal layer 68a of the first unit inductor D1a via the conductive plug 72. As a result, the sixth metal layer 74 of the second unit inductor D1b is connected to the fifth metal layer 68a of the first unit inductor D1a within a space between the first and second unit inductors D1a and D1b. This connection structure is also applied to the connection of the second and third unit inductors D1b and D1c.

Thus, in FIG. 4, the extending portion of the sixth metal layer 74, the extending portion of the fifth metal layer 68a and the conductive plug 72 serve as means for connecting, as recited in the claims.

Regarding FIG. 7, paragraph [0064] of the original specification sets forth:

> Referring to FIG. 7, a second inductor D2 having a vertical spiral structure includes fourth, fifth, and sixth unit inductors D2a, D2b, and D2c, which each have an inverted trapezoid structure and are spirally arranged in a horizontal direction. However, the fifth unit inductor D2b is smaller than the fourth and sixth unit inductors D2a and D2c. Thus, a fifth metal layer 68b of the fifth unit inductor D2b is connected to a fourth metal layer 62 of the fourth unit inductor D2a via a fourth conductive plug 66 and a fifth metal layer 67 of the fourth unit inductor D2a. A fourth metal layer 62a of the fifth unit inductor D2b is connected to a sixth metal layer 74b of the sixth unit inductor D2c via a fourth conductive plug 66b, a fifth metal layer 68c, and a fifth conductive plug 72a within a space between the fifth unit inductor D2b and the sixth unit inductor D2c.

Thus, in FIG. 7, the sixth metal layer 74b, the fourth metal layer 62, the fifth metal layer 67 and the fourth conductive plug 66, or the fourth metal layer 62a, the sixth layer 74b, the fourth conductive plug 66b, a fifth metal layer 67, and a fifth conductive plug 72a serve as means for connecting, as recited in the claims.

Therefore, it is respectfully submitted that the means for connecting is clearly shown in FIGS. 4 and 7. Therefore, it is respectfully requested that this objection be withdrawn.

C. Asserted Indefiniteness Rejection

In the outstanding Office action, the Examiner rejected claims 1-4, 6-9, 11, 13 and 15-16 under the second paragraph of 35 U.S.C. § 112 as being indefinite. This rejection is respectfully traversed for at least the reasons set forth above.

Regarding claim 1, the Examiner requested clarification of the structure constituting the means. It is respectfully submitted that this clarification is provided above with respect to the objection to the drawing figures. Claim 1 has also been amended to more clearly recite the means.

Regarding claims 6, 15-17 and 19-22, it is respectfully submitted that the base metal layer recited therein is the bottom layer of each inductor, as noted by the Examiner. The only specific relationship is that the multi-layer metal layer is between the base metal layer and the top metal layer, as shown, for example, in FIG. 5, which illustrates the base metal layer 44, the top metal layer 74 and the multi-layer metal layer 50, 56, 66 and 68 there between. If the Examiner believes "bottom metal layer" would be clearer than "base metal layer," kindly so indicate, and the applicants will so amend the claims.

Therefore, it is respectfully submitted the claims are clear, and it is respectfully requested that this rejection be withdrawn.

D. Asserted Obviousness Rejections

In the outstanding Office action, the Examiner rejected claims 1-4 and 23 under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of the Ibata et al. reference and rejected claims 6-9, 11, 13-17 and 19-22 under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of the Ibata et al. reference, further in view of the Johnson reference. These rejections are respectfully traversed for at least the reasons set forth below.

Claim 1 recites, in part:

> a top metal layer extending across the width at the top surface; and

means for connecting a unit inductor to an adjacent unit inductor in the plurality of unit inductors in a direction perpendicular to the top metal layer.

The Examiner asserts that the AAPA discloses all elements of claim 1 except the unit inductors having a width that increases from a bottom to a top surface thereof. However, it is respectfully submitted that the AAPA also fails to disclose a top metal layer extending across the width at the top surface or means for connecting unit inductors in a direction perpendicular to this top metal layer. To further clarify this aspect of the present invention, i.e., that the unit inductors are in different vertical planes, claim 1 has been amended to recite that "the means includes metal layers extended from the unit inductors adjacent to the means and a conductive plug for connecting the extended metal layers."

While the Ibata et al. reference may disclose a coiled component having an increasing diameter, the Ibata et al. reference fails to disclose or suggest the top metal layer or means for connecting recited in claim 1. Connection between coiled components in the Ibata et al. reference is apparently achieved using lead out electrodes, and there is no disclosure or suggestion that the connection be perpendicular to a top metal layer.

Therefore, it is respectfully submitted that the AAPA and the Ibata et al. reference, either alone or in combination, fail to suggest, much less disclose, the present invention as recited in claim 1. The Johnson reference fails to provide either of the teachings noted above as missing from the combination. The remaining rejected claims depend, either directly or indirectly, from claim 1, and are believed to be allowable for at least the reasons set forth above.

E. Entry of Amendment Requested

Entry of the above amendment after final is respectfully requested. The amendments to the claims merely clarify the structure as requested by the Examiner. Therefore, the above amendment reduces issues and consideration thereof does not impose an undue burden on the Examiner.

F. Conclusion

Since the cited prior art references neither anticipate nor render obvious the subject invention as presently claimed, applicants respectfully submit that claims 1-4, 6-9, 11, 13-17 and 19-23 are now in condition for allowance, and a notice to that effect is respectfully requested. It is further respectfully requested that the withdrawn claims be rejoined.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

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